

12th Class notes of Maths
Ch 7. Simple interest



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Ch 7. Simple Interest

* Important terms

- 1) Principal (P) - The money deposited or borrowed.
- 2) Interest (I) or simple interest (SI) - The extra money earned from the bank or returned to the bank.
- 3) Amount (A) - The sum of principal and the interest.
- 4) Amount = Principal + Interest
 $A = P + I$
 or $P = A - I$
 or $I = A - P$
- 5) Interest depends on (1) Principal, (2) Rate of interest (R), (3) Period of time (T).

$$\therefore SI = \frac{P \times R \times T}{100}$$

$$\text{or, } P = \frac{SI \times 100}{R \times T}$$

$$\text{or, } R = \frac{SI \times 100}{P \times T}$$

$$\text{or, } T = \frac{SI \times 100}{P \times R}$$

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ANS. The principal is ₹ 42,500.

CHECKPOINT



ENRICHMENT ACTIVITY

Complete the table.

	PRINCIPAL (P)	INTEREST (I)	AMOUNT (A)
1.	₹ 7200	₹ 400	₹ 7600
2.	₹ 1300	₹ 500	₹ 1800
3.	₹ 2500	₹ 800	₹ 3300
4.	₹ 24,000	₹ 1400	₹ 25,400
5.	₹ 12,000	₹ 1250	₹ 13,250
6.	₹ 12,400	₹ 1050	₹ 13,450
7.	₹ 10,100	₹ 2300	₹ 12,400
8.	₹ 66,600	₹ 1200	₹ 67,800
9.	₹ 23,200	₹ 2100	₹ 25,300
10.	₹ 10,000	₹ 1100	₹ 11,100
11.	₹ 70,900	₹ 11,200	₹ 82,100
12.	₹ 80,100	₹ 8,900	₹ 89,000
13.	₹ 11,500	₹ 1,300	₹ 12,800
14.	₹ 32,400	₹ 300	₹ 32,700
15.	₹ 85,200		₹ 97,500

P+I Which is greater, the principal or the amount?

P+I

P+I

P+I

A-I

A-I

A-I Remember! The amount is always more than the principal.

A-P

A-P

A-P

A-P



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Ex 7.1

Q. Find the simple interest:

1) ₹ 1000 at 8% for 1 year

Solⁿ P = ₹ 1000, R = 8%, T = 1 year

$$\therefore I = \frac{P \times R \times T}{100}$$

$$= \frac{1000 \times 8 \times 1}{100}$$

$$= 10 \times 8 \times 1$$

$$= 80$$

Ans: simple interest = ₹ 80

2) ₹ 3000 at 6% for 1 year

Solⁿ P = ₹ 3000, R = 6%, T = 1 year

$$\therefore I = \frac{P \times R \times T}{100}$$

$$= \frac{3000 \times 6 \times 1}{100}$$

$$= 30 \times 6 \times 1$$

$$= 180$$

Ans: simple interest = ₹ 180

3) ₹ 800 for 3 years at 8% per annum.

Solⁿ P = ₹ 800, T = 3 years, R = 8% pa.

$$\therefore I = \frac{P \times R \times T}{100}$$

$$= \frac{800 \times 3 \times 8}{100}$$

$$= 8 \times 3 \times 8$$

$$= 192$$

Ans: simple interest = ₹ 192

4) ₹ 2500 for 5 years at 10% per annum.

Solⁿ P = ₹ 2500, T = 5 years, R = 10% pa.

$$\therefore I = \frac{P \times R \times T}{100}$$

$$= \frac{2500 \times 5 \times 10}{100}$$

$$= 25 \times 5 \times 10$$

$$= 1250$$

Ans: simple interest = ₹ 1250

5) $P = ₹ 6400$, $R = 8\%$, $T = 2$ years

Solⁿ $I = \frac{P \times R \times T}{100}$
 $= \frac{6400 \times 8 \times 2}{100}$
 $= 64 \times 8 \times 2$
 $= 992$

Ans: Simple interest = ₹ 992

6) $P = ₹ 10,000$, $R = 4\frac{1}{2}\%$, $T = 2$ years
 $= \frac{9}{2}\%$

Solⁿ $I = \frac{P \times R \times T}{100}$
 $= \frac{10000 \times 9 \times 2}{100 \times 2}$
 $= 100 \times 9 \times 1$
 $= 900$

Ans: Simple interest = ₹ 900

Ex 7.2

Q Find the amount of each of the following using the given values.

1) $P = ₹ 12,000$, $R = 7\frac{1}{2}\% = \frac{15}{2}\%$, $T = 2\frac{1}{2}$ years
 $= \frac{5}{2}$ years

Solⁿ $I = \frac{P \times R \times T}{100}$
 $= \frac{12000 \times 15 \times 5}{100 \times 2 \times 2}$
 $= 30 \times 15 \times 5$
 $= 2250$

So, Simple interest = ₹ 2250

\therefore Amount = $P + I$	12000
$= ₹ (12000 + 2250)$	+ 2250
$= ₹ 14,250$	14250

2) $P = ₹ 7500$, $R = 8\%$, $T = 2\frac{1}{2}$ years = $\frac{5}{2}$ years

Solⁿ $I = \frac{P \times R \times T}{100}$
 $= \frac{7500 \times 8 \times 5}{100 \times 2}$
 $= 75 \times 4 \times 5$
 $= 1500$

So, simple interest = ₹ 1500

$$\begin{aligned}\therefore \text{Amount} &= P + I \\ &= ₹ (7500 + 1500) \\ &= ₹ 9000\end{aligned}$$

$$\begin{array}{r} 7500 \\ + 1500 \\ \hline 9000 \end{array}$$

3) $P = ₹ 2500$, $R = 5\%$, $T = 1 \text{ year}$

Solⁿ

$$\begin{aligned}I &= \frac{P \times R \times T}{100} \\ &= \frac{2500 \times 5 \times 1}{100} \\ &= 25 \times 5 \times 1 \\ &= 125\end{aligned}$$

So, simple interest = ₹ 125

$$\begin{aligned}\therefore \text{Amount} &= P + I \\ &= ₹ (2500 + 125) \\ &= ₹ 2625\end{aligned}$$

Ex 7.3

A Find the principal for

1) $R = 10\%$, $T = 2 \text{ years}$, $I = ₹ 660$

Solⁿ

$$\begin{aligned}\therefore I &= \frac{P \times R \times T}{100} \\ \therefore P &= \frac{I \times 100}{R \times T} \\ &= \frac{660 \times 100}{10 \times 2}\end{aligned}$$

$$= 660 \times 5 = 3300$$

Ans: Principal = ₹ 3300

2) $R = 7\%$, $T = 3 \text{ years}$, $I = ₹ 630$

Solⁿ

$$\begin{aligned}\therefore P &= \frac{P \times R \times T}{100} \\ \therefore P &= \frac{I \times 100}{R \times T} \\ &= \frac{630 \times 100}{7 \times 3}\end{aligned}$$

$$= 30 \times 100 = 3000$$

Ans: Principal = ₹ 3000

B. Find the rate of interest for ...

1) $P = ₹ 1000$, $T = 4$ years, $I = ₹ 400$

Solⁿ $\therefore I = \frac{P \times R \times T}{100}$

$$\therefore R = \frac{I \times 100}{P \times T}$$
$$= \frac{400 \times 100}{1000 \times 4}$$

$$= 10 \times 1 = 10$$

Ans: Rate of interest = 10% per annum.

2) $P = ₹ 5600$, $T = 1$ year, $I = ₹ 448$

Solⁿ $\therefore I = \frac{P \times R \times T}{100}$

$$\therefore R = \frac{I \times 100}{P \times T}$$
$$= \frac{448 \times 100}{5600 \times 1}$$

$$= 8 \times 1 = 8$$

Ans: Rate of interest = 8% per annum.

C. Find the time for each ...

1) $P = ₹ 1400$, $R = 6\%$, $I = ₹ 168$

Solⁿ $\therefore I = \frac{P \times R \times T}{100}$

$$\therefore T = \frac{I \times 100}{P \times R}$$
$$= \frac{168 \times 100}{1400 \times 6}$$
$$= 2 \times 1 = 2$$

Ans: Time = 2 years

2) $P = ₹ 900$, $R = 9\%$, $I = ₹ 243$

Solⁿ $\therefore I = \frac{P \times R \times T}{100}$

$$\therefore T = \frac{I \times 100}{P \times R}$$
$$= \frac{243 \times 100}{900 \times 9}$$
$$= 3 \times 1 = 3$$

Ans: Time = 3 years

Ex 7.4

Q1. Manish deposits ₹1000 one year.

Solⁿ Manish deposits (P) = ₹1000
Rate of Interest (R) = 6% p.a.
Time = 1 year

$$\therefore I = \frac{P \times R \times T}{100}$$
$$= \frac{1000 \times 6 \times 1}{100}$$

$$= 10 \times 6 \times 1 = 60$$

Ans: Manish will get ₹60 as interest in one year.

Q2. Find the simple 5 years.

Solⁿ Principal = ₹950
Time = 5 years
Rate of interest = 4% p.a.

$$\text{So, } I = \frac{P \times R \times T}{100}$$
$$= \frac{950 \times 4 \times 5}{100}$$
$$= \frac{19000}{100} = 190$$

$$= 95 \times 2 \times 1$$
$$= 190$$
$$\text{Interest} = ₹ 190$$

95
<u> x 2</u>
190

$$\therefore \text{Amount} = P + I$$
$$= ₹(950 + 190)$$
$$= ₹ 1140$$

950
<u>+ 190</u>
1140

Q3. What is the ₹ 675 ?

Solⁿ Mr. Rao deposits (P) = ₹3500
Time = 2 years
Interest = ₹ 675

$$\therefore \text{Amount} = P + I$$
$$= ₹(3500 + 675)$$
$$= ₹ 4175$$

3500
<u>+ 675</u>
4175

Ans: Mr. Rao will get ₹ 4175 after 2 years.

Q4. Aditi got she earned ?

Solⁿ Aditi received amount (A) = ₹75,000
Time = 5 years
Aditi deposited (P) = ₹ 67,225

$$\therefore I = A - P$$
$$= ₹(75000 - 67225)$$
$$= ₹ 7775$$

75000
<u>- 67225</u>
07775

Ans: Aditi earned ₹ 7775 as interest.

Do it in the worksheet

MATHEMATICS

WORKSHEET 1

SIMPLE INTEREST

A. Fill in the blanks.

1. The money deposited or borrowed is called principal
2. The extra money earned from the bank or returned to the bank is called interest
3. The sum of principal and interest is called amount
4. The rate of interest is the rate at which the interest is paid per year for the money.
5. The value of amount can be calculated if the value of principal and interest are known.
6. Interest depends on principal, rate of interest and time

B. Complete the table.

PRINCIPAL	INTEREST	AMOUNT
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MATHEMATICS

WORKSHEET 2

SIMPLE INTEREST

A. Write T for True or F for False.

1. The sum of principal and time is called amount. False
2. The extra money earned from the bank does not depend on the rate of interest. False
3. In a monetary transaction, more the time means more the interest. True
4. The interest does not depend on the principal. False
5. The value of amount can be calculated if the values of principal and interest are known. True

B. Using the unitary method, find the simple interest on

1. ₹ 2000 for 1 year at 7% per annum.
2. ₹ 8000 for 3 years at 5% per annum.
3. ₹ 12,000 for 4 years at 7% per annum.



Do it in the Mental arithmetic book

Exercise 91

Fill in the blank boxes.

- Write the 9th triangular number. 12
- How many edges does a cube have? Are they equal? 12
- $7.3 + 3.7 =$ 11.0
- $0.27 + 0.73 =$ 1.00
- $5 - 1.3 =$ 3.7
- Find 2 numbers whose difference is two and whose sum is 506. 252, 254
 $x + y = 506$
 $x - y = 2$
 $\therefore x = 2 + y$
 $2 + y + y = 506$
 $2y = 506 - 2$
 $y = \frac{504}{2} = 252$
 $x = 2 + 252 = 254$
- Put $<$ or $>$: 0.4 $>$ 0.04
- How many millimetres are there in 2 metres?
2000 mm
 $1\text{m} = 1000\text{mm}$
 $2\text{m} = 2000\text{mm}$
- $6.05 \times 100 =$ 605 $1.468 \div 10 =$ 14.68

• For Rough Work •

Date: Marks Sign:

Exercise 92

Fill in the blank boxes.

- Take away $\frac{2}{7}$ from 1 whole. 5/7 $(1 - \frac{2}{7} = \frac{7-2}{7} = \frac{5}{7})$
- What is $\frac{2}{5}$ of 80? 32 $(\frac{2}{5} \times 80 = 2 \times 16 = 32)$
- How many scores are there in 680 units? 34
 $(\because 1 \text{ score} = 20; 680 \div 20 = 34)$
- $11 - 0.65 =$ 10.35
- Find the HCF of 32, 36 and 48. 4
- Add $\frac{6}{11}$ to $\frac{5}{11}$. 1 $(\frac{6+5}{11} = \frac{11}{11})$
- What is $\frac{3}{8}$ of 72? 27 $(\frac{3}{8} \times 72 = 3 \times 9 = 27)$
- Put $<$ or $>$: -4 $<$ 5
- How many sixteenths are there in $2\frac{3}{4}$? 44
 $(\frac{11}{4} \div \frac{1}{16} = \frac{11}{4} \times \frac{16}{1} = 44)$
- Put $<$ or $>$: $\frac{1}{4}$ $<$ $\frac{5}{12}$
 $(4 \times 5 = 20; \therefore 12 < 20)$
 $(1 \times 12 = 12; \therefore \frac{1}{4} < \frac{5}{12})$

• For Rough Work •

$$\begin{array}{r} 32 \overline{) 36} \quad (1) \\ \underline{-32} \\ 4 \end{array}$$

$$\begin{array}{r} 4 \overline{) 32} \quad (8) \\ \underline{-32} \\ 0 \end{array}$$

$$\begin{array}{r} 4 \overline{) 48} \quad (12) \\ \underline{-4} \\ 08 \\ \underline{-8} \\ 0 \end{array}$$

Marks Sign:

Exercise 93

Write as single expression in decimal.

- $3 \text{ tenths} + 3 \text{ hundredths} =$ 0.33 $(\frac{30+3}{100} = \frac{33}{100})$
- $7 + \frac{10}{100} + \frac{3}{1000} + \frac{7}{10} =$ 7.713 $(7 + 0.10 + 0.003 + 0.7)$
- $261 + 3 \text{ tenths} + 5 \text{ hundredths} =$ 261.35
 $(\frac{3}{10} = 0.3; \frac{5}{100} = 0.05)$
- $\frac{23}{1000} =$ 0.023
- Seventeen and seventeen hundredths
17.17 $(17 + \frac{17}{100} = 17 + 0.17)$
- $2.902 \times 100 =$ 290.2

$$\begin{array}{r} 0.054 \\ 5 \overline{) 0.27} \\ \underline{-0.2} \\ 0.27 \\ \underline{-0.2} \\ 27 \\ \underline{-25} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$
- $0.27 \div 5 =$ 0.054
- $4.49 \div 1000 =$ 0.00449
- $\frac{9}{10000} =$ 0.0009
- $\frac{13}{200} =$ 0.065 $(\frac{13 \times 5}{200 \times 5} = \frac{65}{1000})$

• For Rough Work •

Marks Sign: